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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,684	04/26/2005	Harry Emil Pedersen	Patrade	4378

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EXAMINER	
MYERS, JESSICA L	

ART UNIT	PAPER NUMBER
3746	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,684	PEDERSEN ET AL.	
	Examiner	Art Unit	
	JESSICA L. MYERS	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/2/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *4/26/05* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/26/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

In Reference to Claim 1

Claim 1 recites the limitations "the first area" in line 5, "a low pressure piston" in line 8, "the valve" in line 14, and "the mechanical stops" in line 25. There is insufficient antecedent basis for these limitations in the claim.

In Reference to Claim 2

Claim 2 recites the limitations "the locking arrangement" in line 2, and "the low pressure cylinder" in line 3. There is insufficient antecedent basis for these limitations in the claim.

In Reference to Claim 3

Claim 3 recites the limitations "the locking arrangement" in line 2, "the low pressure cylinder" in line 4, and "the blocks" in lines 10 and 11. There is insufficient antecedent basis for these limitations in the claim.

In Reference to Claim 4

Regarding claim 4 the phrase "optionally may be" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

In Reference to Claim 5

Regarding claim 5 the phrases "characterized in that" and "e.g. by means of" render the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

In Reference to Claim 6

Claim 6 recites the limitations "check valves" in line 3, "high and low pressure connections" in line 4, and "locking mechanisms" in line 5. There is insufficient antecedent basis for these limitations in the claim.

In Reference to Claim 7

Claim 6 recites the limitations "the cylinder borings" in line 3, "the parallel axial connections" in line 4, and "the cylindrical boring" in line 6. There is insufficient antecedent basis for these limitations in the claim.

In Reference to Claim 8

Claim 8 recites the limitation "the oscillating pistons" in line 3. There is insufficient antecedent basis for this limitation in the claim.

In Reference to Claim 9

Claim 9 recites the limitation "the valve" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 3, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 3,737,254 to Swatty (Swatty).

In Reference to Claim 1

Swatty teaches a pressure amplifier including a low pressure inlet (inlet (18)) for supplying medium at low pressure, a low pressure piston (differential piston (8)) with a first operational area and at least one high pressure piston with a second operational area (pumping piston (22)), the second area being of same size or less than the first area (see figure 2), and at least one high pressure outlet (delivery passage (35)), characterized in that a low pressure area communicates with a operational chamber (low pressure from pump (19) communicates with cylinder (4) via inlet (18)), which is limited by a low pressure piston (piston (8) forms a wall of the chamber formed in cylinder (4)) and a surrounding cylinder (4); where at least one high pressure piston is provided interacting with the low pressure piston (pumping piston (22) interacts with the low pressure piston (8) in the sense that they are connected), and that the high pressure piston is co-axially arranged in a high pressure cylinder relative to the low pressure piston (see figure 2); that a changeover valve (sleeve (55)) is coaxially arranged in the cylinder, and that in connection with the valve there is arranged at least one spring (spring (29)) coaxially around an impulse rod (piston (22) forms a rod); that the spring is arranged to be compressed at the movement of the low pressure piston so that a spring loaded locking mechanism (specialized springs (57) and a mechanism including pin (67)) is instantly released (see columns 5-6, lines 47-5), the locking

mechanism being built up of one or more springs (springs (57)) that press a locking member against a corresponding lock abutment formed in the valve (springs (57) press inner end portion (57a) up against notch (62) formed in the sleeve (55)), so that the valve shifts and opens for medium supply to the operational chamber while simultaneously the low pressure piston, via contact with the high pressure piston, is moving the latter towards the high pressure outlet, whereby the impulse rod via impulse spring and the mechanical stops in the end position releases the locking mechanism (pin (67)) whereby the valve shifts and the low pressure medium, via the low pressure connection via check valve, presses the high and low pressure pistons back (see columns 5-6, lines 47-5).

In Reference to Claim 2

Swatty teaches the pressure amplifier according to claim 1 (see the rejection of claim 1 above), characterized in that the locking arrangement is built up in at least one boring (there is a groove (64) provided in the outer rim of the chamber that supports outer end portion (57c) of the spring (57), see figures 2 and 5, as well as column 5 lines 14-24) provided radially in the low pressure cylinder, and that in the boring a ball or a wedge (the inner edge portion (57a) of spring (57) is wedge shaped, see figure 5) has been provided, the ball or wedge interacting with a spring (the wedge is part of the spring (57)) so that the ball or wedge are pressed down into one of two recesses with same dimensions as the part of the ball or wedge provided in the cylindrical surface of the valve (see figure 5).

In Reference to Claim 3

Swatty teaches the pressure amplifier according to claim 1 (see the rejection of claim 1 above), characterized in that the locking arrangement is built up in an annular, flat, round groove provided at the inner side of the low pressure cylinder (there is a groove (64) provided in the outer rim of the chamber that supports outer end portion (57c) of the spring (57), see figures 2 and 5, as well as column 5 lines 14-24), so that at least two U-shaped locking members are arranged in the groove (the outer end portions (57c) of the springs (57) are U-shaped), the locking members being chamfered at the ends, that a number of radially oriented borings (notches (62)) have been provided, corresponding to the number of locking members, and that in each boring there is arranged a spring (57) pressing the blocks towards the centre line of the cylinder so that the chamfered ends of the blocks co-operate hold a locking element (pin (67)) arranged in the valve in one of two positions on respective chamfered sides of the blocks (see columns 5-6, lines 47-5).

In Reference to Claim 6

Swatty teaches the pressure amplifier according to claim 3 (see the rejection of claim 3 above), characterized in that high and low pressure pistons, high and low pressure cylinders, check valves, high and low pressure connections with associated springs and locking mechanisms are arranged coaxially and symmetrically around a common centre line (the pistons (8 and 22), cylinders (2 and 3), valves, and springs (57) are all arranged around an axis that runs through the center of the pistons).

In Reference to Claim 8

Swatty teaches the pressure amplifier according to one or more preceding claim 1 (see the rejection of claim 1 above), characterized in that one or two of the oscillating pistons are used for driving a pump fitted thereon for pumping another medium than the drive medium, or for driving other oscillating apparatuses. The limitation that "one or two of the oscillating pistons are used for driving a pump fitted thereon for pumping another medium than the drive medium, or for driving other oscillating apparatuses" is a recitation of intended use. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Furthermore, the pistons in the apparatus as disclosed by Swatty could be used to drive other oscillating apparatuses.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Swatty in view of U.S. Patent 4,622,992 to Sutherland (Sutherland).

Swatty teaches the pressure amplifier according to one or more preceding claims claim 1 (see the rejection of claim 1 above), but does not teach that the connections

between the cylinder borings and the parallel axial connections and annular channels are established by radial milling from inside the cylindrical boring.

Sutherland teaches a similar hydraulic valve where internal passages of various shapes are formed by milling techniques (see figure 4 and column 6 lines 18-24). It would have been obvious to one of ordinary skill in the art at the time of invention that a variety of methods could be used to form the internal passages of the control valve of Swatty, and that milling would desirable because of its precision when cutting complex paths and shapes.

5. Claims 1, 2, 3, 4, 5, 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Application 2000-87906 to Isamu et al. (Isamu et al.) in view of Swatty.

In Reference to Claim 1

Isamu et al. teach a pressure amplifier including a low pressure inlet for supplying medium at low pressure (see drawing 1), a low pressure piston (flange (21)) with a first operational area and at least one high pressure piston (first and second high pressure producers (6 and 7)) with a second operational area, the second area being of same size or less than the first area (see figure 1 where end surfaces (2a and 2b) of the pistons are smaller than the flange (21)), and at least one high pressure outlet (discharge port (20)), characterized in that a low pressure area (introductory port (4)) communicates with a operational chamber (pressure introduction room (5b)), which is limited by a low pressure piston (flange (21)) and a surrounding cylinder (see drawing 1); where at least one high pressure piston (first and second high pressure producers (6

and 7)) is provided interacting with the low pressure piston (they interact in the sense that they are connected), and that the high pressure piston is co-axially arranged in a high pressure cylinder (see drawing 1, where they share a common central axis) relative to the low pressure piston; that a changeover valve (sleeve (19)) is coaxially arranged in the cylinder, a spring loaded locking mechanism (press implement (23)) is released, the locking mechanism being built up of one or more springs (springs (24)) that press a locking member (roller (25)) against a corresponding lock abutment formed in the valve (formed between the protruding lines (17c1, 17c2, 17c3) that form a mountain shape), so that the valve shifts and opens for medium supply to the operational chamber while simultaneously the low pressure piston, via contact with the high pressure piston, is moving the latter towards the high pressure outlet, whereby the impulse rod and the mechanical stops (the end portions of housing (1) serve as stops) in the end position releases the locking mechanism whereby the valve shifts and the low pressure medium, via the low pressure connection via check valve, presses the high and low pressure pistons back (see paragraphs [0015]-[0017]).

Isamu et al. do not teach that in connection with the valve there is arranged at least one spring coaxially around the impulse rod or that the spring is arranged to be compressed at the movement of the low pressure piston.

Swatty teaches the use of a spring (29) that compresses as a low pressure piston (8) is actuated. It would have been obvious to one of ordinary skill in the art at the time of invention to include a spring to bias the piston arrangement of Isamu et al. as taught by Swatty in order to ensure that the piston would only move when the proper

pressure was applied. Additionally, adding such a spring would help to slide the sleeve (19) of Isamu et al. away from the press implements (23) via the catch (19b) formed on the inside of the sleeve that attached it to the piston rod.

In Reference to Claim 2

Isamu et al. as modified by Swatty teach the pressure amplifier according to claim 1 (see the rejection of claim 1 above), characterized in that the locking arrangement is built up in at least one boring (see drawing 2 of Isamu et al., where bores are used to hold the springs (24)) provided radially in the low pressure cylinder, and that in the boring a ball or a wedge (rollers (25)) has been provided, the ball or wedge interacting with a spring (the rollers are connected to the end of the springs (24)) so that the ball or wedge are pressed down into one of two recesses (angled surfaces (17c2 and 17c3) form two recesses) with same dimensions as the part of the ball or wedge provided in the cylindrical surface of the valve.

In Reference to Claim 3

Isamu et al. as modified by Swatty teach the pressure amplifier according to claim 1 (see the rejection of claim 1 above), characterized in that the locking arrangement is built up in an annular, flat, round groove provided at the inner side of the low pressure cylinder (angled surfaces (17c1, 17c2, 17c3) form a groove on the sleeve (19) which is located at the inner side of the low pressure cylinder), so that at least two U-shaped locking members are arranged in the groove (rollers (25)), the locking members being chamfered at the ends (see drawing 1, where the rollers are rounded at their ends), that a number of radially oriented borings (the bores that hold the springs

(24)) have been provided, corresponding to the number of locking members, and that in each boring there is arranged a spring (spring (24)) pressing the blocks towards the centre line of the cylinder so that the chamfered ends of the blocks co-operate hold a locking element arranged in the valve in one of two positions on respective chamfered sides of the blocks (See figures 1 and 2 which show the two positions of the sleeve and pistons.).

In Reference to Claim 4

Isamu et al. as modified by Swatty teach the pressure amplifier according to claim 3 (see the rejection of claim 3 above), characterized in that the pressure amplifier is double-acting (there are two high pressure producers (6 and 7)) so that the impulse rod is interacting with two high pressure pistons (6 and 7) arranged at opposite sides of the operational chamber (see drawing 1 of Isamu et al.), and that furthermore two high pressure outlets (outlets formed downstream of check valves (13 and 15)) are provided that optionally may be brought together to a common outlet.

In Reference to Claim 5

Isamu et al. as modified by Swatty teach pressure amplifier according to claim 1 (see the rejection of claim 1 above), but do not teach that the high pressure piston and impulse rod, respectively, are loosely connected to the low pressure piston.

However, Isamu et al. teach that the sleeve (19) is loosely connected to the piston rod via a ribbed inner portion of the sleeve (19b) and a groove (17b) formed in the piston rod (see paragraph [0016]). This connection allows the pore (19e) to be opened and closed as the sleeve slides on the piston rod. It would have been obvious

to one of ordinary skill in the art at the time of invention to connect the high pressure pistons (6 and 7) of Isamu et al. as modified by Swatty in a similar manner as the sleeve of Isamu et al. so that the fluid passageways formed inside the pistons could be opened and closed, and so that the pistons could remain in the full stroke position for as long as possible.

In Reference to Claim 6

Isamu et al. as modified by Swatty teach the pressure amplifier according claim 1 (see the rejection of claim 1 above), characterized in that high and low pressure pistons, high and low pressure cylinders, check valves, high and low pressure connections with associated springs and locking mechanisms are arranged coaxially and symmetrically around a common centre line (See drawing 1 of Isamu et al. where the pistons (7 and 7), cylinders, valves, and springs (24) are all arranged around an axis that runs through the center of the pistons).

In Reference to Claim 8

Isamu et al. as modified by Swatty teach the pressure amplifier according to claim 1 (see the rejection of claim 1 above), characterized in that one or two of the oscillating pistons are used for driving a pump fitted thereon for pumping another medium than the drive medium, or for driving other oscillating apparatuses. The limitation that "one or two of the oscillating pistons are used for driving a pump fitted thereon for pumping another medium than the drive medium, or for driving other oscillating apparatuses" is a recitation of intended use. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed

does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Furthermore, the pistons in the apparatus as disclosed by Isamu et al. as modified by Swatty could be used to drive other oscillating apparatuses.

In Reference to Claim 9

Isamu et al. as modified by Swatty teach the pressure amplifier according to one or more preceding claim 1 (see the rejection of claim 1 above), characterized in that externally of the valve, an annular turning is provided with a diameter less than the outer diameter of the valve and a length in longitudinal direction of the pressure amplifier (Angled faces (17c3) form a groove that is annular in shape which is smaller lengthwise than that of the sleeve valve. Also, because the groove is cut from the outside of the sleeve, that portion of the sleeve has a smaller outer diameter than the rest of the sleeve.), the length being substantially less than the length of the valve, and that at least two holes (the hole that runs through the center of the sleeve, and penetration pore (19e)) are provided in the valve radially from the interior of the valve to the outside of the valve (the hole running through the center runs radially when considering an axis that runs vertically through the sleeve as shown in figure 1 of Isamu et al.), and that one hole is provided coinciding with the annular turning (the hole running through the sleeve coincides with the turning (17c3) in the sense that both are arranged about the central axis of the pistons), and that the other hole is provided outside the annular turning (pore (19e) lies outside the plane that contains the deepest portion of the groove formed by the turning.).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA L. MYERS whose telephone number is (571)270-5059. The examiner can normally be reached on Monday through Friday, 8:30am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746

/JLM